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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09.493,350	01.28.2000	John Brewer	696-250	2142

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EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 11/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)
09/493,350	BREWER ET AL.
Examiner	Art Unit
Hien Tran	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) Responsive to communication(s) filed on 16 August 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-13 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

Application/Control Number: 09/493,350  
Art Unit: 1764

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by

Thompson (2,323,498).

With respect to claims 1, 9, Thompson discloses a furnace comprising:  
at least one fired radiant chamber, wherein the chamber is divided into at least two separate independent radiant zones 7, 7' by a dividing means 6;  
at least one burner 13 in each zone 7, 7';  
a convection chamber 8 in directed communication with the radiant chamber;  
at least one independent process coil 9, 10, 9', 10' for each of the zones, wherein each coil extends through at least a portion of the convection chamber 8 and extends into one said zones 7, 7' before exiting said furnace;  
a flue 18 for discharging flue gas located at the top of the convection chamber 8 of the furnace; and  
a means 17 for independently controlling the radiant burners 13 in each zone 7, 7' (Fig. 1).

As to claim 3, the two radiant zones have substantially the same area (Fig. 1).

With respect to claims 5, 10, the diving means 6 is a brick wall (page 1, col. 2, lines 30-44).

Instant claims 1, 3, 5, 9-10 structurally read on the apparatus of Thompson.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The art area applicable to the instant invention is that of furnace.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to

depart from the prior art to reduce costs consistent with the desired product characteristics. *In re Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

6. Claims 2, 4, 8, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Thompson* (2,323,498).

With respect to claim 2, the apparatus of *Thompson* is substantially the same as that of the instant claims, but is silent as to whether there may be more than one radiant chamber.

However, it would have been obvious to one having ordinary skill in the art to provide more than one radiant chamber in the apparatus of *Thompson* since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With respect to claim 4, it would have been obvious to one having ordinary skill in the art to select the size for the zones in the apparatus of *Thompson* on the basis of its suitability for the intended use as a matter of obvious design choice, absence showing any unexpected results and since it has been held that when the only difference between the prior art device and the claim was a recitation of relative size, and the device with the relative size would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC System, Inc.* 725 F.2d 1338, 220 USPQ 777.

With respect to claims 8, 13, *Thompson* discloses a means 17 for independently controlling the radiant burners 13 in each zone 7, 7' (Fig. 1). Although *Thompson* does not explicitly disclose that whether said means may be a fuel regulator, *Thompson* discloses that said means 17 is for regulating the combustible air which is a part of the combustible fuel/air mixture

in the burner 13. Therefore said means is broadly considered as a fuel regulator (note that the instant specification does not define any specific structure for said means (e.g. fuel regulator) to distinguish said means from that of the prior art). Thompson also discloses that in order to regulate the heat input to the tubes in the combustion zones 7 and 7', the combustibles supplied to the heater through the burner ports 14 are varied (page 2, col. 1, lines 64-69). Thompson also discloses that the combustible fuel and air are supplied to the furnace through the burner 13 and the firing ports 14 and since each burner has a separate port 16 and plate 17, each burner is separately controlled.

7. Claims 6-7, 11-12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (2,323,498) in view of Kushch et al (6,159,001 or 5,711,661).

The apparatus of Thompson is substantially the same as that of the instant claims, but fails to disclose the specific material of the dividing means as claimed.

However, Kushch et al disclose provision of using Nextel material in furnace art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate material, such as ceramic fiber, Nextel in the apparatus of Thompson, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, absence showing any unexpected results. *In re Leshin*, 125 USPQ 416.

***Response to Arguments***

8. Applicant's arguments filed 8/16/02 have been fully considered but they are not persuasive.

Applicants argue that Thompson '498 uses separate combustion zones with one continuously connected vertical and horizontal fluid conduit. Such contention is not persuasive since in Thompson, the combustion zone 7 has a conduit 9, 10 and the combustion zone 7' has a conduit 9' and 10'. The conduit 9, 10 are separate and independent from the conduit 9' and 10'.

Applicants argue that the device of Thompson '498 does not provide cracking more than one feed stock at a time and/or cracking at different conditions to provide different product. However, the language of the instant claim does not commensurate in scope with such argument.

Applicants argue that Thompson '498 does not teach provision of a separate independent process coil. Such contention is not persuasive as Thompson discloses a separate independent process coil 9, 10 for the radiant zone 7 and a separate independent process coil 9, 10' for the radiant zone 7.

Applicants argue that Thompson '498 does not disclose a furnace having a fired radiant chamber separated into at least two fired radiant zones. Such contention is not persuasive as the furnace of Thompson '498 does contain a chamber defined by the side walls 1, 1'. Said chamber is divided into two zones 7, and 7' by a dividing wall 6 (see Fig. 1).

Applicants argue that Thompson '498 does not disclose a separate and independent temperature control for each zone. Such contention is not persuasive as Thompson '498 discloses separate burners 13 with separate ports 16 and plates 17 for controlling the amount of combustible air admitted into the burners 13 which indirectly controls the fuel mixture thereof (Fig. 1, page 2, lines 15-26). Thompson also discloses that in order to regulate the heat input to the tubes in the combustion zones 7 and 7', the combustibles supplied to the heater through the burner ports 14 are varied (page 2, col. 1, lines 64-69). It should be noted that Thompson

discloses that fuel and air are supplied to the furnace through the burner 13 and the firing ports 14 and since each burner has a separate ports 16 and plates 17, each burner is separately controlled.

Applicants argue that Thompson does not suggest to operate the furnace at different cracking conditions or to employ different feedstocks. Such contention is not persuasive as the language of the claims does not require any conditions or feedstocks.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is 308-4253. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Calderola can be reached on 305-6118. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

HT  
November 13, 2002

  
**Hien Tran**  
**Primary Examiner**  
**Art Unit 1764**